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# Understanding the Social Implications of Technological Multitasking: A Conceptual Model

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## ABSTRACT

Multitasking is common in today's technology-enabled organizations. However, little attention has been paid to the social meaning and consequences of multitasking. We focus on technological multitasking - which we define as rapid task switching involving information technologies - in situations involving co-location and interpersonal interaction, such as checking e-mail during a meeting or instant messaging during group work. We argue that technological multitasking generates social perceptions and present a conceptual model linking these perceptions to situational factors and performance.

## Keywords

Multitasking, technology, perceptions, polychronicity, interdependence, task relevance, time urgency.

## INTRODUCTION

The presence of information technology has resulted in dramatic changes in individuals' personal and work lives. Today's technologies allow individuals to accomplish multiple tasks almost simultaneously, and, at least in North America, there is a perception that being productive and efficient in the workplace requires being a multitasker (Manhart, 2005).

Research suggests, however, that individuals have great difficulty performing multiple tasks simultaneously. A growing number of studies have demonstrated that switching back and forth between activities, rather than completing them sequentially, can take longer and reduce multitaskers' ability to perform each task (Rubenstein, Meyer and Evans, 2001). Multitasking may also have social consequences. Though many users argue that BlackBerries (a wireless technology which incorporates e-mail and scheduling capabilities) make them efficient, some argue the wireless devices offer new distractions that annoy others (NPR, 2005). A recent study (Schlosser, 2002) reported that participants considered it rude to allow wireless devices to interrupt face-to-face communications. They used the terms "obnoxious," "impolite," "distracted," and "ignorant" in describing those who use RIM BlackBerry's during meetings. Other respondents found socially acceptable excuses for the same conduct, describing users as "accessible," "important," "efficient," and "approachable."

Given the research suggesting that multitasking is harmful to performance, and that there are negative social perceptions associated with multitasking, it is interesting to note that practitioners often describe multitasking as a desired and even necessary skill in the workplace. These mixed perspectives around the value of multitasking behavior lead to our central question: is technological multitasking behavior something to be encouraged or resisted? By technological multitasking we refer to rapid task switching activities utilizing information technologies (cf. Rubinstein et al., 2001) and focus in particular on the social consequences of technological multitasking in situations where one or more of the activities involve co-located interpersonal interaction.

There are several motivations for this research. First, though multitasking is hardly new, there has been an increased use of technologies that support and facilitate multitasking. Hailed as making it easier for people to seek information and to communicate anytime, anywhere, these technologies also offer numerous opportunities for entertainment and distraction (NPR, 2005). In addition, modern technologies have made it easier to become immersed and hidden in one's activities. In the past, reading the newspaper or engaging in a private conversation during a meeting would have been obviously visible activities. Today, small screens, instant messaging, quiet and palm-sized keyboards make these and other activities less obvious and, potentially, less intrusive. We currently know little about the effects of this form of multitasking.

Second, while a substantial body of literature in cognitive psychology examines the performance outcomes of multitasking (e.g. Rubenstein et al., 2001), less attention has been paid to the social meaning of technological multitasking behavior. We currently know little about the conditions under which individuals are likely to multitask and the consequences or implications of their multitasking in the presence of others. Therefore, this research addresses a growing concern with the social consequences of the use of technology in our day-to-day lives.

In the following section we present a conceptual framework of perceptions of technological multitasking. We first discuss the theoretical background that informs our research and then develop a conceptual model and propositions. We conclude with a discussion of the

implications for management theory and practice as well as future research directions.

## THEORETICAL BACKGROUND

Two bodies of literature inform our research. The literature on groups and group performance provides a broad perspective of the factors that influence group functioning and group outcomes. The literature on multitasking explores the cognitive processes involved in multitasking and the relationship between multitasking behavior and individual characteristics.

### Groups

There has been a substantial body of research on the factors that influence team effectiveness (St. Clair and Tschirhart, 2002). Studies have explored the effects of group composition, communication, task characteristics, conflict, and distribution of information on team performance (Levine and Moreland, 1998). Models of team effectiveness emphasize the importance of integrating team members' efforts to produce group outcomes (Hackman, 1987). Researchers have observed that process losses (factors that interfere with members' abilities to contribute to group tasks) often hinder group performance (Kerr and Tindale, 2004). For example, members may interrupt each other, resulting in communication breakdowns.

Multitasking behaviors may enhance the functioning of work groups to the extent that they allow group members to simultaneously accomplish tasks to contribute to the group's overall goals. However, multitasking may also interfere with group performance by disrupting communication. Individuals who are multitasking may be distracted and fall behind group discussion, leading to misunderstandings, conflict and duplication of work. The present study is not concerned with the performance implications of multitasking in groups but instead focuses upon whether group members develop favorable or negative perceptions of those who multitask. We argue that these perceptions are likely to be important antecedents of group member satisfaction and, as a consequence, group effectiveness.

### Multitasking

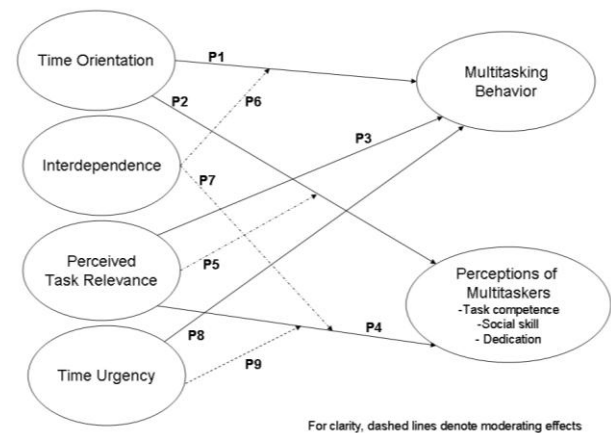
Literature on multitasking has explored the cognitive processes involved in multitasking and the relationship between multitasking behavior and individual characteristics. Early research showed that tasks can interfere with one another, particularly when one or more require concentration (Manhart, 2005). Cognitive resources are required to 'rethink' when one switches from one task to another, resulting in switching costs: the more difficult the problem, the more time people lose in switching (Rubinstein et al., 2001).

There is also evidence that individuals differ in their inclinations to multitask, regardless of their actual ability to multitask effectively. Research on time preferences

has distinguished between individuals who are polychronic and those who are monochronic (Bluedorn, Kaufman and Lane, 1992). Polychronic individuals generally prefer to work on multiple projects or tasks simultaneously whereas monochronic individuals prefer to work on one task at a time. To date, there is mixed evidence of performance differences between polychronic and monochronic individuals, but there is some evidence that the fit between individual time preferences and task characteristics is a predictor of job satisfaction (Hecht, 2002). Finally, there is research that suggests that polychronic individuals may be perceived as more competent than monochronic individuals (Cotte and Ratneshwar, 1999).

## CONCEPTUAL MODEL AND PROPOSITIONS

Our examination of these literatures resulted in the development of our conceptual model (see Figure 1).



**Figure 1. A Model of Perceptions of Technological Multitasking**

Our dependent variable, the individual's perception of others' multitasking behavior, includes three dimensions: task competence, social skill and dedication. Both individual differences and situational characteristics are posited to influence the formation of attitudes. In particular, an individual's own time preference and technological multitasking behavior will affect the way they perceive those who multitask. Additionally, the relevance of the multitasking behavior to the group's task, the extent to which the group relies on the contributions of the individual who is multitasking for successful task completion (interdependence), and the perceived amount of time available for the task to be accomplished are all posited to be important influencers of one's attitude towards others' multitasking behavior. We also specify the effects of interactions between these individual and task characteristics.

### Time Orientation

We noted that polychronicity (Hall, 1976) refers to the extent to which an individual prefers working on several tasks at once rather than one at a time. Monochronics

tend to be “task-oriented, emphasize promptness and a concern for others’ privacy, stick to their plans, seldom borrow or lend private property, and are accustomed to short-term relationships with other people” (Bluedorn et al., 1992, p. 19). Additionally, monochronics tend to regard unscheduled events as interruptions (Bluedorn et al., 1992). In contrast, polychronics “tend to change plans, borrow and lend things frequently, emphasize relationships rather than tasks and privacy, and build long-term relationships with family, friends, and business partners” (Bluedorn et al., 1992, p. 19).

Polychronicity is not a behavior; it is a preference for organizing activities a certain way, and a belief that one’s preference is the best way to do things (Bluedorn, Kalliath, Strube and Martin, 1999). As a result, one can argue that an individual’s time preference will influence the way that individual works. This literature suggests that, since polychronics prefer to work on several tasks at once, we can expect polychronics to be more likely to multitask with technology than monochronics. This argument results in our first proposition:

*Proposition 1: Polychronic individuals are more likely to engage in multitasking with technology than monochronic individuals.*

Individual’s time preference can also affect their perceptions of others. Cotte and Ratneshwar (1999) found that polychronic behavior had both positive and negative meanings, depending upon an individual’s own time preference. Monochronic women viewed others’ polychronic behavior as fragmented, frustrating, confusing, stressful and lacking focus, and believed it would result in poor quality work. Polychronic women, however, viewed polychronic behavior as efficient, realistic and motivating, and noted that it creates a sense of achievement and accomplishment.

In addition, Conte, Rizzuto and Steiner (1999) demonstrated that individuals are able to accurately report the time preferences of others. Thus, time preferences are noticeable by others. Further, Slocombe and Bluedorn (1999) found that the time congruence between observer and observed affects perceptions of performance. Thus, we can expect polychronics to identify with the multitasking behavior of others and thus view them more favorably. Formally stated:

*Proposition 2: Individuals higher in polychronicity will view others who multitask with technology as more competent, dedicated, and socially attractive than those lower in polychronicity.*

#### *Situational Characteristics*

Situational characteristics are important, given that individuals tend to adjust their behaviors depending on context (Ferris, Perrewé and Douglas, 2002). Ferris et al. (2002) argue that an individual’s judgments of others (e.g., competence, social skill, and/or dedication) are

based on his/her interpretation of the appropriateness of the behavior given the context of the situation.

With regard to evaluations of the appropriateness of technological multitasking, we posit that three situational characteristics are of particular importance: task relevance, interdependence, and time urgency.

#### *Task Relevance*

Task relevance refers to the extent to which an individual’s perceived actions contribute to the immediate task at hand. Given a general desire to appear socially competent, an individual working within a group setting is more likely to multitask with task relevant behavior than non-task relevant behavior. Proposition three stems from this logic.

*Proposition 3: Individuals working in groups are more likely to multitask with technology for task-relevant activities than non-task relevant activities.*

In addition, we expect individuals who use technology during group meetings for task-related purposes, such as obtaining relevant information, to be perceived more positively than those perceived to be multitasking for non-task relevant activities. Thus:

*Proposition 4: Individuals engaging in task-relevant multitasking behavior will be perceived by group members as more competent, dedicated, and socially attractive than individuals engaging in non-task relevant multitasking behavior.*

We also posit an interaction between an individual’s time orientation and task relevance. According to Bluedorn et al. (1992), polychronics are more concerned with social relations and their maintenance than monochronics. Since relationship maintenance efforts are equally, if not more, important to polychronics as task accomplishment (Bluedorn et al., 1992), individuals high in polychronicity should differentiate between non-task relevant relational and non-relational multitasking activities, and would have less negative perception of non-task relevant relational activities than would monochronics. Thus, we propose:

*Proposition 5: Polychronics will perceive individuals engaging in non-task related multitasking less negatively than monochronics.*

#### *Interdependence*

Interdependence is the extent to which individuals within a group depend upon the actions of other group members (Wageman, 1995). We expect interdependence to moderate the relationship between an individual’s time orientation and past technological multitasking behavior. When interdependence is low there is less reliance on the contributions of any specific individual for the group to succeed (Kerr and Tindale, 2004). We thus expect that:

*Proposition 6: When interdependence is low, individuals will act in a manner consistent with their time orientation*

*preferences: polychronic individuals are more likely to multitask than monochronic individuals.*

We also expect interdependence to moderate the relationship between task relevance and perceptions of multitasking. In conditions of high interdependence, the group is more likely to expect individuals to focus on the task and to develop negative perceptions of those engaging in non-task related multitasking. We thus propose:

*Proposition 7: When interdependence is low, the effect of non-task relevant technological multitasking on perceptions of an individual's competence, dedication and social attractiveness will be less pronounced than when interdependence is high.*

#### **Time Urgency**

Individual perceptions of deadlines and the rate at which tasks must be performed vary (Landy, Rastegary, Thayer and Colvin, 1991). Research has demonstrated that individuals with high time salience are likely to perform multiple simultaneous tasks within an allocated amount of time (Wright, 1988) and that multitasking is a key individual-level time urgent behavior (Conte, Landy and Amthieu, 1995). Therefore, we expect that when an individual perceives the work groups' deadline quickly approaching (hence time urgency is high), this individual is more likely to technologically multitask than when time urgency is low. Proposition 8 stems from this argument.

*Proposition 8: When time urgency is high, individuals are more likely to multitask than when time urgency is low, independent of their individual time preference.*

We also expect time urgency to moderate the relationship between task relevance and perceptions of multitasking. In conditions of high time urgency, the group is more likely to expect individuals to focus on the task and therefore to develop negative perceptions of those engaging in non-task related multitasking. We thus propose:

*Proposition 9: When time urgency is low, the effect of non-task relevant technological multitasking on perceptions of task competence, dedication and social attractiveness will be less pronounced than when time urgency is high.*

#### **CONTRIBUTION TO MANAGEMENT THEORY AND PRACTICE**

The theoretical model and propositions represent a first attempt at understanding perceptions of multitasking behavior. Multitasking with technology has become pervasive, but its social appropriateness is unclear. Our approach to understanding this problem has been to identify the factors that can explain why multitasking is perceived positively in some situations and not others. We argued that both individual (polychronicity) and situational factors (task relevance, group interdependence

and time urgency) are likely to affect perceptions of technological multitasking.

Our work has implications for theory and practice. In terms of theory, our work contributes to a growing literature on the role of time preferences in organizational phenomena (Bluedorn et al., 1999). Specifically, we note that polychronicity is likely to affect both an individual's propensity to multitask with technology and their perceptions of others' multitasking behavior. We also contribute to research on group behavior by addressing what is becoming a common phenomenon: the use of technology during group meetings. Researchers are only starting to address the consequences of multitasking in teams (Turner and Tinsley, 2002).

In terms of implications for practice, the impact of technological multitasking on perceptions of an individuals' performance and contribution to team work may be significant. Since performance appraisals are often based, in part, on perceptions (Ilgen and Feldman, 1983), as objective measures are often not available, our research might result in individuals being able to appreciate, for example, the conditions under which their multitasking may disrupt team performance. Managers may learn when to encourage or discourage the use of technology in meetings, and may be able to assist employees in developing new technological multitasking practices that positively influence performance evaluations.

#### **FUTURE RESEARCH OPPORTUNITIES**

Many research opportunities follow from this research. First, empirical research is needed to evaluate the model. However, the complexity associated with measuring and capturing the constructs in the model suggests that the model may need to be empirically validated in stages. We are currently undertaking a scenario-based survey to evaluate one portion of the model (propositions 1 through 7). Experimental procedures are also being considered for further model validation efforts.

Second, there are several technologies and applications (cellular phones, laptop computers, e-mail, instant messaging, internet surfing, etc.) that can be examined from this perspective. Individuals have access to a range of opportunities for multitasking with technology and exploring these alternatives will help us develop a fuller understanding of its consequences.

#### **CONCLUSION**

There is little denying that the world has changed as a result of today's ubiquitous and portable technologies. These devices have enabled multitasking behaviors, but the consequences of these behaviors are not yet well understood. Understanding how technological multitasking has changed the way groups work, interact, and the way people perceive and influence others is critical for researchers and practitioners. This is the first step in

understanding some of the social effects of multitasking with technology.

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